

## Loss Mitigation Grant Program Wind Resistive Device (WRD) Product Evaluation

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The product as described herein has been evaluated by the Department of Commerce and Consumer Affairs (DCCA) for compliance with the technical requirements for wind resistive devices installed in single or multi-family residential dwellings. Installation costs of approved products are partially reimbursable under the provisions of the Loss Mitigation Grant Program. The results of the product evaluation are presented in the following report.

### 1.0 Product Information

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#### 1.1 Product Name:

Bertha HV Accordion Shutter System

#### 1.2 Description:

Bertha HV Accordion Shutters are a sliding type aluminum shutter permanently mounted to an exterior wall. The shutters open and close in an accordion fashion and are designed to be closed and locked to provide impact and wind load protection to glazed openings in the event of a hurricane or high wind storm.

#### 1.3 Category:

Submitted for evaluation as a WRD option 3- Exterior opening protection

#### 1.4 Submitted By:

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## **2.0 Product Evaluation**

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### **2.1 Wind Loads:**

The Bertha HV Accordion Shutter system has been verified to sustain maximum wind pressures as indicated on sheets 7, 8 and 9 of 10, of drawing No. 07-085 (see section 2.4 Substantiating Data). Maximum span and anchor spacing shall be as indicated on these sheets for the required design wind pressures.

No test reports have been submitted at this time. According to Product Evaluation Report No. 07-0426.01 issued by Walter A. Tillit, Jr., P.E. (FL No. 44167) dated April 26, 2007, Uniform Static load tests have been conducted under Florida Test Application Standard (TAS) 202, as per section 1609.1.4 of the Florida Building Code and Cyclic loading tests have been conducted in accordance with Florida TAS 203. Although the WRD Loss Mitigation Grant Program requires that these tests be conducted in accordance with ASTM E330 and E1996, the Florida TAS tests have an equal or more stringent protocol and will be acceptable in lieu of the ASTM testing provided that the minimum testing and test report information requirements of Section 4.0 of the Hawaii Department of Commerce and Consumer Affairs *Submittal Requirements for Product Evaluations* are fulfilled.

### **2.2 Impact Resistance:**

No test reports have been submitted at this time. According to Product Evaluation Report No. 07-0426.01 issued by Walter A. Tillit, Jr., P.E. (FL License No. 44167) dated April 26, 2007, Large Missile impact tests have been conducted under Florida TAS 201, as per section 1609.1.4 of the Florida Building Code. This is equivalent to a missile impact rating of D under ASTM E1996-05. The TAS 201 will be accepted in lieu of ASTM E1996-05 if the required documentation per Section 4.0 of the *Submittal Requirements for Product Evaluations* is provided.

### **2.3 Installation:**

Installation shall be performed strictly in accordance with the details indicated on sheets 4, 5, 6, and 10 of 10 of drawing No. 07-085. Minimum glass separation shall be as indicated on sheet 7 of 10. Requirements for use of locks and locking shall be as indicated on Notes 1 and 2 of sheet 4 of 10 and note 9 on sheet 1 of 10.

May 14, 2008

## **2.4 Substantiating Data:**

- a. Drawing Number 07-085, titled "BERTHA HV ACCORDION SHUTTER SYSTEM", sheets 1 through 10 of 10, prepared by Tilteco, Inc., Dated 4/18/2007, signed and sealed by Walter A. Tillit, Jr., P.E. (FL License No. 44167)
- b. Product Evaluation Report No. 07-0426.01, product name "Bertha HV Accordion Shutter System", sheets 1 through 3 of 3, signed and sealed by Walter A. Tillit, Jr., P.E. (FL License No. 44167) of Eastern Metal Supply, Inc. 4/26/2007

## **3.0 Findings**

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Evaluation in review of the submitted data indicates that the Bertha HV Accordion Shutter system as described in this report may conform to the requirements of the loss mitigation grant program, however at this time insufficient data has been submitted to approve this product as an acceptable WRD. The minimum testing and test report information required per Section 4.0 of the Hawaii Department of Commerce and Consumer Affairs *Submittal Requirements for Product Evaluations* must be submitted for further consideration. Furthermore, no anchorage details or test results have been provided for single wall construction common to Hawaii. Additional data must be submitted for WRD approved use on this construction type.

## **3.1 Limitations:**

- a. The Bertha HV Accordion Shutter system is conditionally approved as an acceptable WRD under the requirements of the loss mitigation grant program, subject to these limitations:
- b. Minimum test report information must be submitted for verification.
- c. Submit additional details and test data for approved use on single wall construction.



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May 14, 2008